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The foregoing results, subtracted from unity, give the value of a policy at the end of 1, 2, 3, &c., years.

I have the honour to be, Sir,

Your obedient Servant,

*Eagle Life Office,*  
26th March, 1860.

SAMUEL L. LAUNDY.

## INSTITUTE OF ACTUARIES.

### PROCEEDINGS OF THE INSTITUTE.

*Fifth Ordinary Meeting, Session 1859-60.—Monday, 26th March, 1860.*

CHARLES JELLICOE, Vice-President, in the Chair.

The minutes of the last ordinary meeting were read and confirmed.

The Secretary announced various donations to the library.

It was announced to the meeting that the following Report had been received and adopted by the Council, and that the Syllabus appended would be in future acted upon :—

“ The Examiners of the Institute have the honour to report to the Council, that they have for some time past, in the discharge of the duties entrusted to them, been sensible that the existing Syllabus required modification, in consequence partly of the time which has elapsed since it was formed, and partly of the experience gained whilst it has been in operation; that they have accordingly had several meetings to discuss such modifications as appeared to be desirable; and, having decided upon them, beg leave to submit a copy of the Syllabus in its amended form, with a recommendation that the same be adopted and published.”

A. H. BAILEY.	H. W. PORTER, B.A.	}
SAMUEL BROWN.	T. B. SPRAGUE, M.A.	
W. B. HODGE.	ROBERT TUCKER.	
C. JELLICOE.		

### MATRICULATION EXAMINATION.

Questions.

Vulgar fractions	}	7
Decimal fractions		
Logarithms	}	4
Evolution		
Equations, simple and quadratic	}	8
Series, arithmetical and geometrical		
Permutations and combinations	}	2
Binomial theorem		
Finite differences		
Geometry—First four books of Euclid		
Total		25

Maximum number of marks 500, of which 250 must be obtained to enable the Candidate to pass.

## SECOND YEAR'S EXAMINATION.

	Questions.
Theory of logarithms	
Elements of the theory of probabilities	6
Compound interest and annuities certain	
Tables of mortality	4
Construction of auxiliary tables	
Annuities and assurances on lives	
Annuities and assurances on survivorships	15
Miscellaneous questions	
Total	<hr/> 25

Maximum number of marks 750, of which 375 must be obtained to enable the Candidate to pass.

## THIRD YEAR'S EXAMINATION.

	Questions.
<i>Life Assurance Finance</i> .—Construction and graduation of tables of mortality; existing tables of mortality—the mode of their construction and their respective merits; methods of determining the surplus in an Assurance Company and of distributing it amongst the assured	5
<i>Legal Principles</i> .—Acts of Parliament; Charters of Incorporation; Deeds of Settlement; Partnerships, limited and unlimited—powers and duties of persons constituting them; Policy considered as a Contract; Probates and Letters of Administration; Assignments; personal representatives; Bankruptcies	5
<i>Statistics</i> .—Methods for the arrangement and collection of data; tests of accuracy; preparation of abstracts and reports; general system of the country's finance; funded and unfunded debt, and fiscal arrangements; taxation	5
<i>Currency, Banking, and Investments</i> .—Currency, metallic and paper; nature of banking—Bank of England, Private and Joint Stock Banks; Bills of Exchange; comparative value of securities; high and low prices; fluctuations in the rate of interest	5
<i>Miscellaneous</i> .—Book-keeping; auditing; valuation of marketable securities; and approximate calculations	5
Total	<hr/> 25

Maximum number of marks 1000, of which 500 must be obtained to enable the Candidate to pass.

A paper was read, "On the Life Assurance Companies of Germany; their business and position in 1858." By Herr Rath G. Hopf, of Gotha, Corresponding Member.

Thanks having been voted to Herr Hopf, the meeting adjourned to 30th April, 1860.

*Sixth Ordinary Meeting, Session 1859-60.—Monday, 30th April, 1860.*

W.M. BARWICK HODGE, Vice-President, in the Chair.

The minutes of the last ordinary meeting were read and confirmed.

The Honorary Secretary read a letter from Mr. A. G. Finlaison, announcing the decease of his father, Mr. John Finlaison, the President of the Institute; and Mr. Hodge, after expressing the regret with which that intelligence had been received, reported that Mr. Jellicoe had been unanimously elected by the Council to fill the office until the annual general meeting in June. Mr. Jellicoe briefly expressed his acknowledgments for the honour conferred upon him, and the business of the meeting was then proceeded with.

The Secretary announced various donations to the library.

Frederick Bigg, Esq., duly nominated at the last ordinary meeting, was unanimously elected a Fellow of the Institute.

Mr. Hodge then read Part 4 of his paper, "On the rate of interest for the use of money in ancient and modern times."

A vote of thanks was very cordially given to Mr. Hodge, and the meeting adjourned to the 26th November, 1860.

*Annual General Meeting, Saturday, 2nd June, 1860.*

CHARLES JELLICOE, President of the Institute, in the Chair.

The circular convening the meeting having been read,

The minutes of the last ordinary meeting were read and confirmed.

The Report of the Council was then read by Mr. J. Hill Williams, one of the honorary secretaries, and was as follows:—

"The Council have the satisfaction of reporting, that, notwithstanding the great changes which have taken place of late as regards the various assurance institutions established in the metropolis, the number of members on the roll of the Institute suffers no decrease of importance. At the present time it appears there are 46 Fellows, 20 Official Associates, and 81 Associates—147 members in all—a number differing but little from that reported of late years as constituting the whole body.

"The receipts during the year amount to £612. 12s. 7d., and the payments to £392. 2s. 8d.; a further small purchase of Consols has been made, and the assets now consist of £220. 10s. 11d. in cash, and £192. 8s. 6d. invested in (£198. 16s. 2d.) Stock, making together the sum of £412. 19s. 5d. This includes the donation so obligingly made by Mr. Gompertz towards an extension of the library.

"The following papers have been read during the session, viz., 'On the rationale of certain actuarial estimates,' by Charles Jellicoe; 'On a formula for calculating the value of a survivorship assurance,' by M. Réboul; 'On the purchase of life assurance policies as an investment,' by Archibald Day; 'On some considerations suggested by the Reports of the Registrar-General, being an inquiry into the question how far the inordinate mortality in this country, exhibited by these Reports, is controllable by human agency,' by H. W. Porter, B.A.; 'On the Life Assurance Companies of Germany, their business and position in the year 1858,' by Herr Rath G. Hopf; 'On the rate of interest for the use of money in ancient and modern times' (Part IV.), by William Barwick Hodge, Vice-President.

"Some of these have already appeared, and the remainder will shortly be published, as usual, in the *Journal* of the Institute.

"The members have been informed that the prize offered last year by the Institute for an essay on the methods of distributing the surplus among the persons assured in a Life Assurance Company, has not been awarded. The Council have therefore determined on repeating their offer of a similar prize, and again invite the associates to compete for it. The subject of the essay and the regulations to be the same as before.

"The members have also been made aware of the heavy loss which the Institute has sustained in the death of its President, the late Mr. Finlaison. The office of president was tendered to that gentleman at the formation of the Institute, in accordance with the unanimously-expressed wishes of its founders, and was accepted by him, without hesitation, at a time when its capabilities were unknown and its success uncertain.

"Throughout its career the late President manifested a lively interest in its proceedings, and never failed, when taking part in them, to exhibit the utmost kindness and courtesy to its members. The Council forbear to touch upon the events of a life of great activity and usefulness, whether regarded from a public or a private point of view. They trust that a more fitting occa-

sion for doing so will shortly present itself, and meanwhile content themselves with this brief record of their respectful remembrance and unfeigned regret.

"In accordance with Article 28 of the Laws and Constitution of the Institute, it was necessary to appoint a successor to Mr. Finlaison, for the period intervening between the time of the vacancy occurring and that of the annual general meeting; and Mr. Jellicoe having, at the request of a majority of the members of the Council, allowed himself to be put in nomination for the office, was balloted for at a special meeting of the Council on the 28th April last, and found to be unanimously elected. Mr. Jellicoe has, accordingly, exercised the functions of the presidency until the present time, and, as the members will observe, is now recommended for re-election."

The abstract of the receipts and payments of the Institute, for the financial year ended 31st March last, was then read (*see p. 120*).

On the motion of the Chairman, the Report was unanimously adopted.

The election of a President, Vice-Presidents, and Officers, for the year ensuing, was then proceeded with.

Mr. Bailey and Mr. Cutliffe were appointed scrutineers.

On the result of the ballot being obtained, the following was declared to be the list, viz. :—

*President.*

CHARLES JELLCOE.

*Vice Presidents.*

SAMUEL BROWN.

WILLIAM BARWICK HODGE.

PETER HARDY, F.R.S.

ROBERT TUCKER.

*Treasurer.*

JOHN LAURENCE.

*Honorary Secretaries.*

JOHN REDDISH.

J. HILL WILLIAMS.

The following gentlemen were also unanimously elected Auditors of the Institute:—Edward Cutbush, John Coles, and James Terry.

It was resolved unanimously—"That the best thanks of the meeting be given to the President and Council for their services during the past year."

Mr. Jellicoe said—"Gentlemen, on behalf of the Council I have to express our acknowledgments for your kindness in adopting so readily the resolution which has just been passed; and on behalf of the Vice-Presidents, the other officers and myself, to thank you for the honour you have done us in this day's election, and to assure you that while we are sensible of the compliment you have paid us, we are not forgetful of the responsibilities which it involves. We have laboured now for some years under the auspices of our late President, whose loss we so much regret. In the language of our laws, we have striven 'to elevate the attainments and to promote the efficiency of those engaged in our pursuits; and we have sought to extend and improve the data and methods of that science which has its origin in the application of the doctrine of probabilities to the affairs of life.' That our efforts have not been wholly unavailing I think any impartial person must acknowledge, who regards for a moment the number and variety of the subjects discussed in our *Journal*, and who can appreciate the clear light which has there been thrown upon many questions heretofore hidden in the deepest obscurity. The mathematical theories applicable to our science have been developed and extended, and the ideas of almost every writer upon them collected and examined. The manifold processes required in our daily practice have been in like manner reviewed—improvements introduced into them where improvement was needed, and new methods substituted where the old ones were found to be radically defective—and thus have been brought about a precision and uniformity of practice which, it must be admitted, were a few years ago altogether unknown. I will not dwell upon the advantages to be derived from the bringing into one focus such a mass of information on the subject of assurance generally, both at home and abroad, and from the collection of so much valuable and original data having reference to it, nor upon the utility of the discussions which serve to throw no

little light upon many questions of public interest and importance; neither will I now detain the meeting by any lengthened allusion to the very satisfactory progress which the educational section of the Institute has exhibited, and to the wholesome and purifying influence which it is now exercising, and which it evidently promises to exercise in time to come—an influence more needed, as it would seem, in our pursuit than in almost any other. Suffice it to say, that the general result of our efforts is such as fully to justify them, and to encourage us to persevere with increased energy in the course upon which we have entered. I need hardly say there is much to be done: we have to inquire into the desirableness of adopting the modification so ingeniously suggested by Mr. Farren, and so ably illustrated by Mr. Younger, of what we may, perhaps, without impropriety, refer to as our peculiar 'calculus,' and to determine whether the advantages accruing are sufficient to justify an alteration, which, while it undoubtedly calls into exercise a much more refined method of determining our averages, will still leave them to be dealt with as are now those found in the more ordinary way, and which will apparently render it necessary to recalculate almost the whole of the immense collection of our tabulated values. We have also to ascertain whether any material change will appear in our mortality tables after they shall embody the results of a more prolonged experience, or whether they will remain unaffected by the events which have yet to be registered. It is surmised, as I need hardly mention, that the rates which they now exhibit may be more or less modified by the character of the withdrawals occurring in later years. It is, too, becoming more and more important to ascertain whether the rate of human mortality in the United States and elsewhere, amongst persons assured, corresponds with that found to obtain in this country: a vast amount of risk is being incurred on the assumption that it does, but there exists at present little or no data to warrant such an assumption. I am glad, however, to be able to state that an investigation, with a view to the elucidation of this matter, is now going forward in New York, under the able superintendence of gentlemen connected with the native Companies in the States. Some difference of opinion still exists as to the most accurate mode of dividing the surplus amongst the persons assured in a Life Assurance Company. It is very desirable that any doubts on this subject should be set at rest, and that, as far as possible, an uniformity of practice should obtain in regard to it. Amongst the purely statistical investigations which we have already touched upon are those connected with the questions of the decimal system of weights, measures, and coinage, and direct taxation. The arguments in relation to the former seem to be nearly exhausted; nevertheless, the somewhat unreasonable opposition made to the proposed reform calls for further efforts, and it is to be hoped that additional advocates, or at least expounders, will not be wanting amongst the members of our Society. As regards the question of taxation, it is very desirable that further investigations should be made, to determine whether it be true or not that trade is paralysed by the imposition of such duties as those of the customs and excise, and whether it be true or not that a vast means of employment for the population is thereby destroyed, and a needless poverty created and enforced. On the other hand, there remains abundant room for discussing what is the true measure of liability in a system of direct taxation, and for illustrating with the aid of statistical records, the merits or demerits by which such a system may be found to be characterised. Such are a few of the subjects which may hereafter profitably engage our attention, and I trust I may be allowed to express the hope that the younger members of the Institute will assist in the investigation of them. I would ask them to bear in mind that unless the habits which these labours require are formed in early life, they become irksome and distasteful in later years; that if they desire to exercise their best faculties then, it is needful that they exert some energy now; and that the Institute must of necessity look to them at no very distant day to maintain and improve whatever reputation or distinction it may then have acquired from the persevering labours of their predecessors."

The meeting then adjourned.

# INSTITUTE OF ACTUARIES.

Br.	Abstract of Receipts and Payments for the Year ending 31st March, 1860.	Cr.
		PAYMENTS

RECEIPTS.	£	s.	d.	PAYMENTS.	£	s.	d.
March 31, 1859.				1859.			
To balance brought forward . . . . .	64	10	8	Rent . . . . .	75	0	0
Special subscriptions, viz.—25 at £3 3 0 . . . . .	£78	15	0	Salaries . . . . .	98	8	7
1 " 1 0 . . . . .	1	1	0	Journal (5 quarters) . . . . .	119	3	0
1 " 1 0 . . . . .	1	0	0	Library . . . . .		8	6 10
Subscriptions for 1858-9 (arrears) . . . . .	5	5	0	Stationery and Printing . . . . .	16	19	0
Subscriptions due for 1859-60—				Postage and Receipt Stamps . . . . .	6	15	0
46 Fellows . . . . .	34	Town . . . . .	£3 3 0	Firing and Lighting . . . . .	12	17	7
12 County . . . . .	2	2	0	Institute Meetings . . . . .	14	0	8
20 Official Associates . . . . .	18	Town . . . . .	3 3 0	Advertising Examinations (2 years) . . . . .	4	18	0
82 Associates . . . . .	64	County . . . . .	2 2 0	Miscellaneous . . . . .	18	1	4
18 County . . . . .	1	1	0	Total of general expenses . . . . .	374	10	0
Less Subscriptions of Members not paid, viz.—				Purchase of £18 12s. 3d. 3 per cent. Consols (Dividends from Messenger Legacy) . . . . .	17	12	8
4 Associates, Town . . . . .	2	2	0	March 31, 1860.			
2 " Country . . . . .	1	1	0	Balance carried forward . . . . .	220	9	11
	2	2	0				
					£612	12	7
March 31, 1860.							
To Balance brought down . . . . .	£220	9	11				
Guarantee Society . . . . .	336	0	0	Examined and approved:—			
Examination Fee . . . . .	90	8	1				
Dividends on Messenger Legacy . . . . .	5	5	0				
Sundries . . . . .	25	3	10				
	£612	12	7				
Total . . . . .	£700	0	0				

L. CHILD, *Auditor*  
EDWARD CUTBUSH,  
CHAS. WATKINS.

12, ST. JAMES'S SQUARE, LONDON,  
18th May, 1860.

**Note.**—The Assets of the Institute, on the 31st March, 1860, consisted of £981 16s. 2d. 3 per cent Consols, say 179 10 1